James Tanner's Institute
Johns Hopkins Hosp. Reprint Printed Dec. 1895

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FROM

THE AMERICAN JOURNAL OF THE MEDICAL SCIENCES,

DECEMBER, 1895.

[Extracted from The American Journal of the Medical Sciences, December, 1895.]

ON THE VISCERAL COMPLICATIONS OF ERYTHEMA EXUDATIVUM MULTIFORME.

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By exudative erythema is understood a disease of unknown etiology with polymorphic skin lesions—hyperæmia, œdema, and hemorrhage—arthritis occasionally, and a variable number of visceral manifestations, of which the most important are gastro-intestinal crises, endocarditis, pericarditis, acute nephritis, and hemorrhage from the mucous surfaces. Recurrence is a special feature of the disease, and attacks may come on month after month, or even throughout a long period of years. Variability in the skin lesions is the rule, and a case may present in one attack the features of an angio-neurotic œdema, in a second of a multiform or nodose erythema, and in a third those of peliosis rheumatica. The attacks may not be characterized by skin manifestations; the visceral symptoms alone may be present, and to the outward view the patient may have no indications whatever of erythema exudativum. Of the eleven cases here reported the visceral manifestations were as follows: In all gastro-intestinal crises—colic, usually with vomiting and diarrhœa—five had acute nephritis, which in two cases was followed by general anasarca and death; hæmaturia was present in three cases; hemorrhage occurred from the bowels in three cases, from the stomach in two cases, from the lungs in two cases, from the nose in three cases; one patient had spongy and bleeding gums; two cases presented enlargement of the spleen; in one case there were recurring attacks of cough and bronchitis without fever; in one case there was a heart murmur. Five of the cases had swelling about and pain in the joints.

The skin lesions were polymorphic, ranging from simple purpura to extensive local œdema, and from urticaria in all grades and forms to large infiltrating hemorrhages of the skin and subcutaneous tissues. In individual cases the cutaneous eruptions were often of the most varied character.

The remarkable tendency to recur is a feature of all forms of exudative erythema. It will be noted that of the cases here reported in only one was the attack single. In the others there were multiple outbreaks distributed over periods ranging from two months to eight years.

A majority of the cases would be described under the heading of purpura or peliosis, since hemorrhage was the most constant lesion, but the

variable character of the eruption, and its interchangeable nature in individual cases, make a wider definition of exudative erythema the more acceptable. A remarkable circumstance, which I have not seen mentioned in the literature (though it is not likely to have been overlooked), is the recurrence of severe attacks without cutaneous manifestations. In the first two cases—which are at present under observation—one would not for a moment suspect the true nature of the disease from the existing manifestations, which are entirely visceral.

I will first give a detailed report of the cases which have come under my observation.

CASE I. *For six years recurring gastro-intestinal crises—colic, vomiting, and diarrhœa—with fever, delirium and erythema multiforme; for two years no skin lesions with the attacks; enlargement of the spleen.*—Benjamin L., aged twenty-seven years, Norfolk, Va., consulted me October 14th, complaining of attacks of gripes and cold feet, which have recurred very frequently during the past eight years. For a time the attacks were thought to be severe indigestion with colic. They recurred at first every two or three months; he once passed six months without an attack, but for nearly three years he does not think that he has ever been free for so long as two months. He gives an account (corroborated by that which his wife has written) of a very remarkable series of events. He is always, for a day or two, warned of the attack by the occurrence of

Cold feet, an unerring premonitory feature. They are also cold to the touch, sometimes for as long as forty-eight hours. Frequently, too, he has had at this period uneasiness in the stomach. Independent of food or of the time of the day, he then begins to feel pain in the abdomen, and has severe

Gripes, as he calls them; sharp recurring attacks of colicky pains in the central portion of the abdomen. Formerly the pain was severe enough to double him up, but of late years it has not been so intense, and he gets more relief by straightening himself out to the full extent. He often vomits, and in the early attacks always did so. Of late years he has had more belching, which seems to relieve the pain. In some attacks he has had diarrhœa, but of late he has been constipated during and after them. With the abdominal symptoms, sometimes preceding them, there is

Fever. He gets burning hot everywhere but in his feet. Within a few hours he becomes delirious; as his wife expresses it, he talks "out of his head." He himself says that he talks much nonsense, just as in a fever, and imagines all sorts of things. One of his favorite fancies is that in an attack, during the colic, he has twenty-six throats and twenty-six stomachs, which are all in a row, and he cannot pick out the one which belongs to him, and which is causing the pain.

I had obtained this much of the history from him, and was beginning to be very interested, as it seemed an unusual sort of affection, when he voluntarily expressed the information that in the attacks "great big liver spots came out all over him." In several of the first attacks he thought he had been poisoned by eating something that had disagreed with him. The spots came out on the trunk and arms, not so often on the legs, and they were sometimes so large that they took days to dis-

appear. Some have been as large as the palm of his hand. They are always red, sometimes raised, but never itch. During the first few years almost every attack was characterized by them. For nearly two years he has not had any of the blotches on the skin. The entire duration of the attack is from six to ten hours. After them he feels very sore in the abdomen, particularly the right side. He is irritable and has lack of energy. He has never had pain or swelling in the joints. The urine is sometimes high colored, but not more, he thinks, than is common in fever.

There is no similar disorder in his family. He has always been a healthy, strong man, and is actively engaged in business. This disease has always been a great trouble to him, as he never knows at what time it may attack him.

The patient is a medium-sized man; looks healthy, though a little pale; the tongue is clean; the gums are not swollen; the pulse is quiet; the examination of heart and lungs is negative.

The abdomen looks natural; is not swollen. On deep inspiration the edge of the spleen is distinctly palpable; area of vertical dulness five fingers' breadth. The stomach is not enlarged; liver normal, no increase in size. The urine is not albuminous. There are no spots now on the skin; no swelling of the legs; no swelling of the joints. The retinæ are normal.

Case II. *Attacks of colic for a year, with bleeding at the nose, anæmia, and one outbreak of urticaria; recurring attacks of cough. Subsequently attacks with arthritis and lesions of erythema exudativum; enlargement of the spleen.*—The following case is of great interest because of the persistence of the abdominal symptoms with ill health and anæmia for such a long period before the appearance of arthritis and erythema exudativum.

W. E. B., aged eleven years, was seen first March 10, 1894. Family history excellent. He is a well-grown boy, very active and intelligent. About a year ago he began to have attacks of severe pain in the abdomen, coming on very abruptly, not associated with any errors in diet, and often of such severity that he would roll upon the floor in great pain. After the attack passed off he would be quite comfortable. At this time he had several attacks of bleeding at the nose, and got pale. His appetite kept good and he has never had any vomiting. During the latter part of the summer he had a very "brazen" cough, which was suspected to be pertussis. Once during last summer he had an attack of hives below the knee. He has never had any rheumatism; never complained of any pain about the joints, but he has had pains low down under the left ribs.

The appetite for the past year has not been very good, and he has been very particular about his food. The bowels have been regular, and the attacks of colic have never been followed by diarrhœa.

During the winter he remained pale and had occasional attacks of colic, and the cough recurred at intervals. He has been able, however, to go to school, but has not been at all strong.

Present condition. A fairly well-nourished boy, a little pale in the face, but the lips and tongue are of good color. The muscles are feebly developed; the skin is clear; there is no purpura, no staining.

The abdomen looks a little large, is soft, nowhere painful on deep pressure. The edge of the liver can be readily felt at the costal margin. The spleen is enlarged and extends in the parasternal line nearly

to the level of the navel; the edge and its notch are to be felt very plainly. The upper limit of dulness is at the lower margin of the seventh rib.

The heart-sounds are clear, and there is no enlargement of the organ. The lungs are everywhere clear on percussion, but at the right apex and right upper axillary region there are a few medium-sized moist râles.

The blood presented no special changes; the leucocytes were not increased. There was a moderate grade of anæmia, about 80 per cent. of red blood-corpuscles, and about the same of hæmoglobin. The urine was clear, and contained neither albumin nor tube-casts.

I confess to have been quite puzzled by the case. The history of protracted colic with cough and the moderate anæmia with enlargement of the spleen formed a symptom-group which did not seem to come into the category of any recognized affection. There had been no articular troubles, and the occurrence of the urticarial rash last summer seemed to be an accident.

On April 9th his mother said that he had complained several times of pain in the left shoulder, but there was nothing to be seen on inspection.

Under the free administration of arsenic and iron he improved a great deal, and the spleen reduced considerably in size. In the middle of April he had an attack in which the cough was much aggravated, and he had slight fever, the temperature reaching nearly to 102°. There was no dulness, but at the apex of the left lung there were many moist râles before and behind. It was with great difficulty that any expectoration could be obtained; it was bronchial and contained large numbers of alveolar cells. He improved very much toward the end of the month.

Friday, May 18. He has been doing very well. The spleen is only just palpable beneath the edge of the ribs. He has complained since last Sunday of pains about the legs and knees. I noticed to-day one or two bluish stains as if there had been purpura.

22*d*. The patient came again to-day. Last Friday evening when he went home the ankles were swollen and red, and blotches of urticaria and purpura came out over the instep and first phalanges of the toes. They extended along the outer surface of the left leg and there were a few on the right, but there was not so much swelling in the feet. This is the first occasion on which he has had an outbreak of purpura; with it he had an attack of severe colic, the first for several weeks. The legs and feet to-day present the fading stains of the purpura. There is no swelling and no soreness, and he feels quite well. The trouble in the lung seems to have almost disappeared, and he has very little cough.

June 6. Since the last note the boy has been very well, with the exception of an attack of œdematous swelling on the back of the left hand. To-day he has had a good deal of itching and an acute attack in both ankles. The condition is as follows: On the back of the left hand there are three or four scattered patches of erythema with exudation. Over the knuckle of the little finger there is considerable swelling, but no ecchymosis. The right ankle is swollen, and the swelling extends over the dorsum of the footand about ha lf-way up the ankle. There is some heat, and extending for about two inches above the malleoli on either side there are mottled ecchymoses. The same extend half

way down the dorsum of the foot. The left ankle is a little puffy, and the entire leg is covered with the remnants of purpuric urticaria. Though the ankles are swollen and look very sore, yet he was able to walk to the house, and could take off his shoes and stockings alone. Temperature, 99.2°.

27*th*. Patient has been at Atlantic City and has not been materially benefited. He looks thin and pale; the spleen is still palpable, and the edge can be felt two fingers' breadth below the costal margin. He has had no skin trouble since the last note.

October 30. He has been much better until to-day, when he had an attack of colic. He looks pretty well, and has no blotches, no purpura since spring. The spleen is decidedly smaller; the edge only just palpable. The liver is not enlarged. The piping and moist râles have all disappeared. He took the Fowler's solution in full doses at intervals to the 15th of August.

December 7. He has had no arthritis since May, and no spots, but there have been many attacks of pain in the abdomen, which last only five or ten minutes. The edge of the spleen can still be felt. The liver is not enlarged. His color is good; his tongue is clean. I ordered the syrup of the iodide of iron. He has been taking the Fowler's solution at intervals since last May and cod-liver oil since the 15th of August.

March 9, 1895. He has kept very well through the winter and has been at school. Yesterday his father allowed him to play hockey. Last night he had very severe attacks of colic. He has had them also at intervals through this morning. I saw him at 5 o'clock; he seemed better. There was no arthritis; no skin eruption. He had had one tender point on his right shoulder. He had had some cough, and there were numerous piping râles, chiefly at the right apex. Examination of the abdomen was negative; the spleen was smaller than it had been on any previous occasion. The liver was not enlarged; no tenderness anywhere on palpation.

June 5. He has been much better; no attacks of colic; no spots. He began to cough about three weeks ago, and now coughs "terribly" at night. The spleen is a full hand-breadth below costal margin. There is a remarkable condition of right apex again; the note is higher in pitch than normal as low as the fourth rib and behind to the spine of scapula. There are many large moist râles over whole infra-clavicular, mammary and upper axillary regions. The breathing is not tubular, but is a little harsh.

19. The cough has been better. The spleen is not so large as at last examination, only just two fingers' breadth below the costal margin The resonance is still a little high pitched at the right apex; numerous crackling râles from the clavicle, extending through the mammary region into the axilla.

October 21. He has had a good summer. The spleen is only just palpable; no colic; no spots. Recently the cough has returned, and there are now crackling râles at the left lower mammary region and right lower axilla; a few, too, at the apex.

CASE III. *Joint pains; colic with diarrhœa; urticaria; purpura urticans, appearing in crops; melæna; acute nephritis; death.* (Abstract.[1]) —A boy, aged six years, seen with Drs. Dunton and Agnew. There was

[1] Reported in full in New York Medical Journal, December 22, 1888.

a rheumatic history in the family, and the child of an aunt on the father's side died of purpura hemorrhagica. The onset was with pains in the ankles, followed by colic and an urticaria-like eruption. Hemorrhage from the bowels followed in about ten days. The recurring attacks of colic were most distressing. About the fifth week after the onset the urine became scanty and albuminous, and showed a few blood-corpuscles and numerous tube casts. After the development of the dropsy the attacks of purpura ceased, and he died of the acute nephritis within three months of the onset of the illness.

CASE IV. *Second attack; arthritis; cutaneous hemorrhages and urticaria; colic; vomiting; albuminuria; recovery.* (Abstract.[1])—The patient, a man aged forty-six years, was admitted to the Philadelphia Hospital, under my care, with diarrhœa and extensive purpuric rash and polyarthritis. About eighteen months before he had had a similar very severe attack, which had lasted three weeks. In the present one he had recurring colic, swelling, and tenderness of both elbows, of the right knee, and of the right ankle. There were numerous purpuric spots on arms and legs. The vomiting was a very distressing feature. Three days after admission a fresh eruption occurred of urticaria and purpura. The gums were not spongy. The urine contained much albumin and many hyaline and epithelial casts. The patient improved rapidly, and within a month from the time of admission seemed quite well, though on his discharge there was still albumin in the urine.

CASE V. *Gonorrhœa; acute arthritis and synovitis, with purpura; severe colic and vomiting, with successive outbreaks of purpura, urticaria, and larger extravasations; hæmaturia. Recovery after an illness of two months' duration.*—Jas. McD., aged eighteen years, was admitted to the Johns Hopkins Hospital March 16, 1890, complaining of pain and swelling in the wrist-joints and fever. The patient knows very little of his family history, other than that his father died of pneumonia.

He has always been healthy, and can only recall having measles when seven years old. He has never had rheumatism. He contracted gonorrhœa a month ago and still has a slight discharge.

Present illness began March 9th with fever, pain, and swelling in the knees and in the calves of the legs. He did not go to bed, but attended a dispensary in the city and was ordered an ointment. On March 12th the wrists became swollen and the fever increased, and he had much pain in the back. Two or three red spots came out on the skin.

Present condition. The patient is a well-nourished young man. The temperature is 99.5°. The face is flushed; lips red; tongue coated on the dorsum, red at the edges. There is now no swelling of the knees. Both wrists and the backs of the hands and of the fingers are swollen and tender, and are reddened and pit on pressure. The swelling over the wrists is chiefly subcutaneous. Movement of the joint is not painful. On both legs, on the ankles and on the feet there are numerous ecchymoses, varying in size from a half to five or six millimetres. They are also present on the inner surface of the thighs, and a few are scattered on the back and buttocks. About the ankles there are some larger, confluent ones, which are capped with vesicles. The heart's action was regular and there were no murmurs. The urine was yellowish in color, a little smoky, acid, sp. gr. 1025, and microscopically it presented many

[1] Ibid.

blood-corpuscles, with some hyaline and a few epithelial casts. The meatus of the penis is red and moist, but no discharge can be squeezed out. A bacteriological examination was made of the material from the vesicles on the legs. Esmarch's tubes were made, but nothing grew. At first we regarded the case as one of gonorrhœal synovitis with purpura, but the subsequent history of the case shows that it must be grouped as erythema exudativum.

March 17. A large, swollen, hemorrhagic wheal developed on the inner malleolus of the right leg. In the evening the patient complained of much deep-seated pain in the abdomen, and vomited.

18*th*. The temperature has ranged from 99° to 101°. He vomited again this morning and complains a good deal of pain in the back.

20*th*. The urine contains much less blood, but hyaline and epithelial casts are still present. For the first time a murmur was noticed to-day in the pulmonary area.

22*d*. The hands are very much better. The left biceps to-day about its middle is swollen and tender, and it pains him to move it.

23*d*. The patient complains of a great deal of pain in the abdomen below the navel. He has had no further vomiting. Fresh purpuric spots are present to-day over the clavicles. The swelling of the left biceps has increased; extension of the arm is particularly painful. There is no discharge to-day from the urethra.

24*th*. A group of ecchymoses has extended about the neck. The biceps to-day is very tender. He complains much of pain in the abdomen, and for this in the evening he had to be given a hypodermic of morphine. The urine still contains a moderate amount of albumin, red blood-corpuscles, and numerous hyaline casts. It has a distinct cherry color.

25*th*. A small, raised erythematous area has appeared over the right instep, capped with a distinct bleb. Cultures from this were made, which subsequently showed the presence of the ordinary pus organisms.

26*th*. Albumin and casts persist.

27*th*. Urine is lighter in color, no blood noted to-day. Patient has improved somewhat; the biceps is better.

29*th*. Within the past twenty-four hours a large patch of purpuric spots has developed on the outer side of the left forearm, and on the right buttocks there has come out a crop of ordinary urticaria with somewhat injected margins.

31*st*. No casts noted in the urine. Patient has had no abdominal pain for some time.

April 1. New crop of purpura on the dorsum of the right foot. No fresh articular trouble. The temperature has ranged from 99° to 100° and 100.5°. The heart-sounds at the apex are clear. Daily notes were made on the urine, and albumin and hyaline casts were present. He improved a good deal, though at times he had sweats. On the 15th he had a recurrence of vomiting and of the abdominal pain, and a fresh crop of petechiæ came out on the right side of the neck and chest. Pain in the abdomen was so severe that he required morphine hypodermically. Blood did not appear in the urine. On the 16th he was better. On the 17th the vomiting was very severe and the abdominal pain most intense in the region of the stomach. The tongue was clean and moist; he has no fever, and he slept well after the morphine. There were a few ecchymoses also on the right elbow.

18*th*. The pain in the abdomen is better. The tongue is to-day coated; the urine is turbid, smoky, and dense, an unusually large number of tube casts, some of which are pale, others made up of leucocytes and a few blood-corpuscles.

19*th*. The blood persists in the urine; the casts are not so numerous.

From the 20th to the 22d he was better, no fever. On the 23d a fresh crop of purpura came out on the right instep. He has no fever, and has been better; appetite good. He has gained in weight. He improved quite rapidly early in May and left the hospital on the 12th. At the time of discharge the urine had a specific gravity of 1013, contained a trace of albumin and a few hyaline casts.

CASE VI. *Third attack. Purpura, colic, and melæna; vomiting; recurring attacks; albuminuria; death from pneumonia.*—Wm. L., aged nine years, admitted to the Johns Hopkins Hospital October 18, 1892, complaining of spots on the arms and legs. The family history is good; the father and mother, two brothers, and one sister are living and healthy. The mother had rheumatism in right hand fourteen years ago.

The patient has always been a delicate child. He had pneumonia when three years old, and measles when six. No other illness. Sixteen months ago he had the first attack of the affection with which he suffers at present, namely, spots on the skin, which recurred frequently with pain in the bowels and blood in the stools. The present illness began about two months ago; the spots first appeared. He lost his appetite and got pale. Five weeks ago he had the first attack of pain in the abdomen, with nausea and vomiting. It lasted all day and he had several bloody movements, and there was a little blood in the vomitus. In a week or ten days he improved and remained better until two weeks ago, when an attack began in the same way, with little pain in the abdomen, nausea and vomiting, and bloody stools. On several occasions his knees have been a little stiff in the evening, but there has been no swelling and no pain. In one of the attacks his mother states that he coughed up a little blood, and one day his nose bled. With each attack a fresh crop of spots appeared on the skin.

Present condition. He is a healthy-looking boy; the lips and mucous membrane are perhaps a little pale; the pulse is of good volume, 104; the temperature is 100°. When asked what is the matter with him he places his hand on the abdomen and says he has pain and soreness. Over the arms and legs there is a copious purpuric rash. The spots on the legs are fading; those on the arms are fresh. On the afternoon and evening of the 19th he vomited a great deal, and was unable to retain anything, and had a good deal of pain in the shoulders. No blood appeared in the vomitus or in the stools. On the morning of the 20th a fresh crop of spots was noticed, particularly over the shoulders and back. The joints were neither enlarged nor tender. The apex beat was inside the nipple line; the sounds were loud and clear. The abdomen looked natural; the spleen could not be palpated; the area of dulness was not increased; the liver was not enlarged. The urine was turbid, yellow, sp. gr. 1020, and presented a trace of albumin. On the 22d, after the attacks of vomiting and pain and the fresh crop, the specific gravity was 1020, the amount of albumin had increased, and a few finely granular tube casts were found and a few red blood-corpuscles.

The patient improved very much on the 21st and 22d, the vomiting ceased, and on October 23d his mother removed him.

At home he got somewhat better, and the purpura did not develop so long as he stayed in bed. There was no return of the pains in the stomach or of the vomiting. He remained pretty well until about the 16th of November, when he had a chill, which was followed by pneumonia, of which he died on the 28th of November. During the illness the temperature was high; no purpura developed.

CASE VII. *Hip disease; subcutaneous hemorrhages; purpura urticans; colic; vomiting; arthritis; great œdema of forehead; albuminuria; recovery.*—Mary R., aged four years, seen November 15, 1890, with Dr. Finney. The child had always been healthy and strong until June of this year, when she began to have symptoms of hip disease. She was seen by Dr. Halsted and Dr. Finney toward the end of October, and two injections of iodoform into the joint were made.

On Thursday, November 6th, she had been restless all day, and in the evening the mother noticed that her hands were swollen and covered with bluish spots. Dr. Finney saw her that evening, when she had slight fever, temperature about 101°, and the hands presented a swollen appearance due to subcutaneous localized infiltrations with blood, giving a curious patchy blueness. These were seen on the palmar as well as the dorsal surfaces. The following day there was a very extensive purpuric urticaria about the elbows, ankles and knees, and irregularly scattered over the limbs. There was no special swelling or soreness of any of the joints.

On the 8th she began to have pains in the abdomen of a cramp-like character, coming on at intervals with vomiting. The urine was clear and free from albumin; the bowels were not loose. From the 8th to the 15th, when I saw her, she had in brief the following symptoms: 1. Successive crops of most extensive cutaneous hemorrhages, chiefly in the form of urticaria, but many were deep, subcutaneous, and presented through the skin only a bluish diffuse color. There were also many smaller purpuric spots not raised above the surface of the skin. 2. The feet were swollen and the ankle-joints enlarged and tender. The other joints did not seem to be affected. 3. On the 12th the forehead became greatly œdematous, and the swelling extended to the eyelids, closing them completely. This swelling was not associated with hemorrhage. There were several spots on the face and ears. 4. Extreme general sensitiveness so that the slightest touch seemed painful. 5. Abdominal symptoms, consisting of paroxysmal attacks of colic of great severity and of obstinate vomiting. At the time of my visit the child was better than she had been for four days. She was sitting up in bed, and the face looked bright. The left cheek was swollen, tender, and presented on the mucous surface a patchy, whitish appearance. The arms were covered with fading ecchymoses. Those about the elbow were still raised from infiltration of the skin, and on the hand on both sides there were bluish subcutaneous infiltrations. The spots were not numerous on the thorax, but were tolerably abundant upon the abdomen and very numerous over the buttocks, where they presented the appearance of ordinary urticaria. The patches almost covered the skin of the face, and about the extensor surfaces of the knees. The ankles looked large, rather it seemed from subcutaneous infiltration than from involvement of the joints themselves. They were, however, painful on pressure. The feet were swollen, the skin tense, due largely to a diffuse subcutaneous infiltration with blood. The abdomen was not tender, there was no enlargement of

the liver or spleen, the heart-sounds were normal. The blood was examined by Dr. Thayer, and showed nothing special except a slight increase in the number of leucocytes. The bowels were constipated. The urine seemed normal in quantity and contained a trace of albumin, but no blood.

Dr. Finney had given various remedies without special influence. Ergot was employed without success. The solution of morphine seemed to be most effectual, allaying the pain and giving the child sleep. The child recovered completely.

Case VIII. *Slight trauma; crops of purpura; no arthritis; severe colic with diarrhœa; acute nephritis; general anasarca; uræmia; death.*—Olive L., aged five years, referred to me by Dr. Goldsborough, of Cambridge, Md., July 14, 1891, with general anasarca.

The father has suffered much at times with rheumatism; the mother and three other children are well.

This was the first child; she had always been strong and robust.

On June 14th, just a month ago, while playing under a cherry-tree, she struck her foot against a chair, and complained very much to her mother that it hurt her. Very soon she could not move the leg, and by nightfall, it is stated, that she could not move either leg. A small congested spot was seen on one ankle, and it was thought possible that something had bitten her. The next day a rash came out on the skin of the legs, irregular patches of a bright red color, which within twelve hours turned to a dark purple. For two weeks they came out in crops, and as they disappeared œdema of the feet was noticed, and the urine became scanty. There was no hæmaturia. The bowels were regular; her appetite was poor, but she had at times severe pains in the abdomen.

Present condition. The child presents general anasarca and is very anæmic. The tongue is moist; pulse 100; no increase in tension; the temperature is normal. Upon the skin of the legs to the middle of the thighs, and upon the arms to the elbows, there are irregular brownish stains from 5 to 30 millimetres in diameter. The examination of the heart and lungs is negative; apex beat is in normal position. The abdomen is large, and there is dulness at the flanks, but the chief distention seems to be due to tympany. The spleen is not palpable, and the liver is not enlarged. The anasarca extends to the back, and is, of course, most marked on the legs and thighs. The urine was not examined at the hospital, but Dr. Goldsborough, who had made frequent tests, stated that it presented both albumin and tube casts, but no blood.

Dr. Goldsborough wrote subsequently that the condition of the patient did not improve in any way. No further attacks of purpura occurred, but she had frequently colicky pains and diarrhœa. The anasarca continued in spite of all measures, and she died with uræmic coma and convulsions.

Case IX. *Arthritis; purpura urticans; colic and vomiting; recovery.*—Lewis J., aged twelve years, admitted January 2, 1895, with œdema of the legs, pain, and purpura.

The family is healthy; there is no history of hæmophilia. One brother has been treated in the hospital for rheumatism.

The patient has had measles, varicella, and mumps.

Present illness began December 16, 1894, with pains in the legs. The left ankle was swollen on the 21st and remained swollen up to the

date of his visit on the 26th. It was painful only on motion. Red blotches came out on the 20th and 21st. He had no other swelling and no abdominal pain at this attack.

I saw him on the 26th in the dispensary, and noted that he was a healthy-looking boy; gums not spongy; tongue clean. Both legs are swollen and are œdematous, and the skin shows remnants of a copious rash of purpura urticans. The tissues about the left ankle are much swollen and œdematous and the joint is stiff. He is not able to walk on it. The purpuric rash extends up the trunk as far as the chest. The heart-sounds are clear. This day when we saw him the rash was fading. On the same day after returning home he had a very severe attack, which began with vomiting, and was associated with great pain in the abdomen. This persisted on and off for three days. The pain was griping, recurring in spells, getting very much worse at intervals, and caused him to twist and squirm about in bed. A fresh crop of purpura came out with this attack. He has been getting better, but his legs have remained swollen.

On admission he had a fairly good color. The gums are a little swollen, but not spongy. The legs show numbers of small, fading purpuric spots. There is a little puffiness, but the ankles are no longer swollen. The edge of the spleen could not be felt.

The boy did very well, the swelling disappeared from the legs, and he has been up and about.

On the 15th he had a fresh eruption on the legs and thighs, most of them cutaneous and purpuric in character; others deep in the subcutaneous tissues, looking like *tache bleuâtre*. The legs became somewhat swollen. He had no colic. There was no albumin in the urine.

Case X. *Repeated attacks of epistaxis and bleeding from the gums, with purpura. Subsequently attacks characterzied by chills, colic, and purpura urticans; recovery.*—B. W., about thirty years, Alexandria, seen February 1, 1892, complaining of swelling of the gums and a tendency to bleed.

The patient comes of a perfectly healthy family, in which there is no special tendency to bleeding.

In October, 1889, he had his first attack of bleeding from the nose and gums. It began on Monday and continued until Friday. Dr. Hamilton, then of Washington, plugged the nostrils. He was in bed at this time for two weeks.

A second attack began two weeks subsequently, with nose-bleeding, swelling of the gums, and numerous purple blotches appeared on his skin. In this attack the bleeding stopped spontaneously. He was well then until December, 1890, when he had severe bleeding from the gums, and three weeks subsequently another attack, in which he bled also from the nose. He was ill for two days, and at this time he went to New York to consult Dr. Jacobi. He then remained well for some months. In a recurrence he went to Germany and consulted Professor Baümler, who very kindly referred him to me.

During the past year the attacks have changed entirely in character; there have been at least half a dozen, the last one four weeks ago. They now invariably begin with severe pains in the abdomen and vomiting. This is followed by or associated with a chill. On one occasion it lasted an hour; then within the day bleeding begins from the gums, and within from twenty-four to thirty-six hours the skin of the

legs and arms (and once of the face) become covered with raised bluish spots. The chill comes first, as a rule, and is not always very severe. Lately he has had no epistaxis, only the bleeding from the gums. The pains in the abdomen are of great intensity and are like ordinary colic. They rarely last more than half an hour to an hour. The vomiting has sometimes been severe; he never brought up any blood; never passed blood in the stools or with the urine. He has never had any pains in the joints.

The patient looks pale, but he is not profoundly anæmic; the pulse is good, a little jerky; the gums are swollen, spongy, but are not bleeding. The skin of the arms and legs is covered with remnants of the attack of four weeks ago; some of the stains are large, as if the rash had been purpura urticans.

The heart-sounds were clear. The spleen was not enlarged.

Patient sought direction with reference to the possible prevention of the attacks. He was ordered Fowler's solution and the juice of half a lemon twice daily.

I heard of this patient on the 13th of February, 1895. Dr. O'Brien tells me that, with the exception of one slight attack shortly after he saw me, he has had no outbreak. He took the Fowler's solution at intervals for a long time, and attributes his recovery to it.

Case XI. *For four years recurring attacks of colic with hæmatemesis, melæna, purpura, and arthritis.*—Annie R., aged eighteen years, seen at the Dermatological Dispensary with Dr. Gilchrist, June 29, 1895, complaining of an extensive hemorrhagic eruption on the arms and legs.

In July, 1891, when she was fourteen years old, she had the first attack, which began with vomiting and cramps in the abdomen. From her mother's description it must have been of great severity, as the stomach symptoms persisted for five or six weeks. The cramps were of such severity that she went off into spasms. At first the vomitus was not colored; subsequently she vomited blood, and she passed blood from the bowels and in the urine, and once coughed up blood. About eight weeks after her illness began, before she had recovered her strength, blotches appeared on the arms and legs, and she had pain and swelling in the knees, elbows, and fingers. In this attack she was in bed very ill, and crops of purpura recurred on and off until January. Then she got better and remained well until the following August, when she had a second attack, which was not so severe, as she had not to go to bed, but it had the same characters of cramp in the abdomen, much vomiting, and the skin eruption. She has had no arthritis since, and no bleeding from the mucous membranes. During the past two years the attacks have recurred with great frequency, and she no sooner recovers from one attack than another begins to develop. She has not, however, had cramps for two years.

Present condition. She is a healthy-looking, well-nourished girl; color is good; tongue is clean. The gums are not spongy (her mother says they never have been swollen); the tonsils are not enlarged. None of the joints are swollen. There is an extensive hemorrhagic eruption on the arms and legs, chiefly on the extensor surfaces of the arms and about the elbows. The rash does not extend to the chest and back and there are no spots on the hands or on the face. The skin of the lower extremities is extensively involved; the ankles are a

little swollen and puffy and the skin over them shows many fading spots. The eruption is very abundant about the knees, where the hemorrhages in places are confluent. Some of the patches are a little raised. The eruption is somewhat symmetrically distributed on the knees. It is also very abundant on the thighs.

Patient seen again October 7, 1895. She has been taking Fowler's solution, and has been in many ways much better. Through the summer she has had four attacks, one with vomiting and colic. The vomiting began in the evening about six o'clock and lasted until 1 A.M. The spots came out with great rapidity and were very extensive over the arms and legs. In one of the attacks the knees and ankles were swollen and tender. In one of the attacks Dr. Gilchrist removed a small spot of the purpura and found, as his sections show beautifully, that the hemorrhage was chiefly about the hair follicles.

At the time of the present visit the skin is almost entirely clear.

The visceral lesions of the various types of erythema have been carefully studied by many observers. In erythema nodosum, endocarditis and pericarditis have been frequently described. Lewin[1] in 58 cases met with heart complication six times, and Stephen Mackenzie[2] found ten instances of heart affection in 108 cases of erythema nodosum. In the type of erythema characterized by hemorrhages and œdema with pains in the joints—the affection known as purpura, or peliosis, rheumatica—the visceral complications are, as Kaposi remarks, much more frequent than in erythema nodosum. They are chiefly albuminuria with nephritis and acute endocarditis.

Ever since Willan (1808) described a case of purpura associated with violent vomiting, excruciating pains in the bowels, and anasarcous swelling of the legs, thighs, and hands, cases have been reported with this remarkable symptom-complex. One of the earliest cases by Ollivier[3] is of especial interest inasmuch as with the ecchymoses there was also simple œdema of the eyelids and of the hands.

Henoch[4] in 1874, and also in the various editions of his *Vorlesungen ueber Kinderkrankheiten*, called attention to this combination of symptoms.

Couty[5] described the condition as a special form of purpura of nervous origin.

Of late years an attempt has been made to separate these cases as examples of an independent disease, which has been called *Henoch's Purpura*. v. Dusch and Hoche, in Henoch's *Festschrift* for 1890, have given an exhaustive description of the cases, and a tabulated list of seventeen cases in children, and twenty-two in adults. They conclude that the clinical picture presents differences from the forms of purpura heretofore recognized, which are sufficient to establish an independent and well-defined type of disease.

[1] Charite Annalen, Bd. iii.
[2] Clinical Society's Transactions, vol. xix.
[3] Berliner klin. Wochenschrift, 1874.
[4] Archives de Méd., 1827.
[5] Gazette Hebdomadaire, 1876.

Though Willan gave a graphic description of a case, this symptom-group has not attracted special attention from English and American writers. Among the 54 references in the article by v. Dusch and Hoche there were only three English and no American cases. Of the recent text-books, that of McCall Anderson[1] makes, as far as I can see, no mention of it. Crocker[2] refers to two cases with gastro-intestinal symptoms.* Malcolm Morris[3] is silent on the subject, with the exception of a brief reference to cardiac complications in peliosis rheumatica. Kaposi[4] lays much stress on the internal complications, among which, under erythema multiforme, he mentions hemorrhage into and gangrene of the pharyngeal mucosa, hemorrhage from the kidneys, severe arthritis, endo- and pericarditis, and pneumonia; in erythema nodosum, besides the colic, acute nephritis; and in purpura or peliosis rheumatica, hæmaturia, and endocarditis. In the works on skin diseases by American authors the special symptom-group to which I refer is scarcely mentioned.

In addition to those collected by v. Dusch and Hoche there are cases reported by Russell,[5] McKay,[6] Dutt,[7] Collie,[8] Monillot,[9] Prentiss,[10] and two cases by Musser.[11] Other cases are reported by Silbermann.[12]

When one considers how benign, as a rule, in all its types, is the course of exudative erythema, the mortality of the cases with severe visceral complications is remarkable. Of sixty-one cases (including those in v. Dusch and Hoche's table, the additional ones which I have collected, the 11 cases here reported), there were thirteen deaths, a percentage of 21.3.

Of the visceral manifestations by far the most common are the

Gastro-intestinal crises, which are claimed as the distinguishing characteristic of Henoch's purpura. The features are very varied. There may be simple colic of all grades of intensity, from a transient, readily borne belly-ache to an attack of such agony and duration that repeated hypodermics of morphine have to be given. Vomiting and diarrhœa are frequent, but not necessary, accompaniments of the attack. In some cases the vomiting occurs without the colic, or a severe attack of vomiting and diarrhœa may accompany the outbreak of the purpura. The attack bears no relation whatever to food, and may come on abruptly in a person in excellent health, and in *Case II.* (in which the colic occurred alone so frequently) the boy's mother could never notice any circumstances which increased the liability to the trouble. An identical form of colic is described in the so-called angio-neurotic œdema, many cases

[1] Diseases of the Skin.
[2] Diseases of the Skin, 2d edition, p. 115.
[3] Diseases of the Skin, 1894.
[4] Pathologie und Therapie der Hautkrankheiten, Vierte Auflage, 1893.
[5] British Medical Journal, 1883, ii.
[6] Ibid., 1886, ii.
[7] Ibid., 1888, ii.
[8] Lancet, 1891, i.
[9] Transactions of the Academy of Medicine, Ireland, vol. v.
[10] Transactions of the Association of American Physicians, vol. v.
[11] Ibid., vol. vi.
[12] Henoch's Festschrift.

of which should doubtless be reckoned with this type of erythema exudativum. In fact, in one of the attacks in *Case II.* œdematous swellings occurred without purpura. In the remarkable family which I described a few years ago,[1] in which acute circumscribed œdema had occurred in five generations, the gastro-intestinal crises formed a special feature of the attacks. Of great interest in this connection is the patient whose history is given under *Case I.*, in whom for more than two years the attacks have been characterized by fever, delirium, and gastro-intestinal crises of great intensity, but without skin lesions.

It is possible that among the cases of recurring gastro-intestinal crises of unknown etiology, such as have been reported by Leyden, some belong in this category.

Nephritis, the most serious complication, was present in five of my cases. In the total number (61) already referred to there were fourteen cases, of which four died. In the mildest grade there is only a trace of albumin, with a few tube casts, as in Case VII.; while the more aggravated cases present all the symptoms of an acute hemorrhagic nephritis. Recurring hemorrhages may take place from the kidneys, as in Case XI., without causing nephritis. In other instances, as in Case VIII., the nephritis dominates the scene almost from the outset, and may prove fatal within a few months. The amount of albumin present varies from a well-marked trace, as in Case VII., to large quantities, as in Cases III., IV., and VIII. The tube casts were hyaline and epithelial, and often contained blood-corpuscles. Dropsy was present in two of my cases. In a majority of the cases the recovery is complete, but in rare instances the nephritis becomes chronic. The only case, so far as I know, in the literature has been reported by Dr. Prentiss, of Washington. At the Association of American Physicians in May, 1890, he showed a patient aged thirteen years, who in March, 1889, had his first attack, with pain in the abdomen, vomiting, arthritis, and purpura. A second attack followed in September and a third attack in November of the same year, in which, in addition to the pain in the abdomen, there were hemorrhages from the bowels and bladder. In this attack he was delirious, and had dyspnœa and swelling of the forehead. On December 17, 1889, and on February 27, 1890, he had relapses. After this, to the date of reporting, he had recurring attacks at intervals of a month or six weeks. The urine contained blood, and on one occasion it was diminished in amount and had much albumin. A point of particular interest in this case was the fact that he had large hemorrhages into the skin, which became gangrenous and sloughed. At our meeting this year—May, 1895—Dr. Prentiss brought the patient before us again. The boy has now chronic nephritis, with dropsy, albuminuric retinitis, increased tension, and stiff

[1] American Journal of Medical Sciences, April, 1888.

arteries. In this instance the acute nephritis of 1889, associated with the extensive erythema exudativum, laid the foundation of the present chronic nephritis.

Next in order of serious import is the hemorrhage from the various mucous membranes, which were present in five of my cases. There was bleeding from the nose in three, in one of which the nostrils had to be plugged on several occasions. Case XI. had hemorrhages from the stomach and bowels, and coughed up blood. Slight hæmoptysis occurred in another case. In three there were hemorrhages from the kidneys In Case X. the gums were swollen and spongy and bled profusely in many of the attacks. Hemorrhage from the bowels is the most common, and occurred in thirty of the thirty-nine in v. Dusch and Hoche's tables, and in thirty-nine of the total sixty-one cases. In one case only of their list did the gums bleed, and in three the sputa were bloody; in no instance, I believe, did death occur directly as a result of hemorrhage from the mucous membranes.

Cardiac complications were not present in my cases; the murmur in one case quickly disappeared. Endocarditis is rare, having occurred in only two cases in the total series. Pericarditis occurred in three cases. This is a much smaller percentage of heart complications than in the cases of erythema nodosum collected by Stephen Mackenzie. I have only once seen cardiac complications in peliosis rheumatica. The case has been reported by Dr. Musser[1] who very kindly took me one day to see the case. The patient had extensive peliosis rheumatica with pericarditis and a gangrenous slough on the uvula.

The respiratory organs are less frequently involved. In Case II. the recurring attacks of cough with bronchitis are, I believe, part of the affection. The sputa always indicated bronchitis, and at times the cells of the alveolar epithelium have been unusually abundant. The cough was often dry, very annoying and persistent, and there was once or twice sneezing. In v. Dusch and Hoche's list of thirty-nine cases pleurisy is mentioned twice, bronchitis once, and pneumonia twice, both fatal cases. In Case IX. of my series pneumonia followed the disease and proved fatal. In this connection it is interesting to note the statement of Lewin, who found among seventy cases of erythema nodosum in the literature four deaths from pneumonia.

The onset of the attack may be with a chill, as in Case X.; more frequently the skin lesions are preceded by feelings of indisposition and slight gastric disturbance. The curious prodrome, which has recurred during so many years in Case I., great coldness of the feet, I have not seen mentioned. Fever is a frequent accompaniment of the attack. In cases which have the type of peliosis rheumatica the temperature may

[1] Transactions of the Association of American Physicians, vol. vi. p. 284.

range from 101° to 103°, or even higher, for several days; there may, however, be the most extensive skin lesion without pyrexia. At the height of the attack delirium may occur.

Perhaps the most extraordinary and distressing feature of the disease is the tendency to recur, which is so noticeable in all types of exudative erythema. In Case XI., in which the disease has persisted for four years, during the first two years the girl no sooner recovered from one attack than another began. In Case I., the patient's life is, as he says, a burden, owing to the recurrence every month or two of the severe colic.

Arthritis was present in five cases of my series, and in thirty-two of the collected cases. The periarticular more often than the intra-articular tissues are affected, and the chief part of the swelling is often due to effusion in the tendon sheaths about the joints, and, as in Case II., the patient may be able to walk quite well with the ankles much swollen.

The anatomical conditions associated with the visceral symptoms are not well understood, but the changes in the gastro-intestinal canal, at least, are probably the counterpart of those which occur in the skin, namely, exudation of serum, swelling, hemorrhages, and in rare instances necrosis. At autopsy hemorrhages have been found in the internal organs. A remarkable case is given by Silbermann in Henoch's *Festschrift* for 1890. A child, aged ten years, was attacked on December 15, 1887, with fever and pains in the knees. On the 16th there was an outbreak of purpura, with colic, hæmatemesis, and melæna. After persisting for three days the symptoms disappeared. The attack recurred in January with great severity, and on the 20th, 21st, and 22d there were signs of an acute peritonitis. The autopsy showed an acute purulent peritonitis, which had resulted from a perforation at the fundus of the stomach. There was no ulceration in the bowels, but the mucosa was swollen and congested. There were necrotic foci in the stomach and intestines, and thrombi were found in some of the bloodvessels. In a few instances necrosis and gangrene have occurred on the skin, as mentioned in connection with Dr. Prentiss's case.

The outbreak of this type of erythema multiforme during gonorrhœa, as in Case V. of my series, is interesting in connection with the etiology, since this is one of the infections with which a severe type of true purpura hemorrhagica occurs, and of which a fatal instance has been recorded by Patterson.[1]

I purposely refrain from discussing the relation of these conditions to rheumatism, and the question of the infective character of some forms

[1] British Medical Journal, 1886, i.

of erythema exudativum. I have nothing to say which would help to clear the existing confusion or which is not already better said in journals and monographs easy of access. My purpose in this paper has been to call attention to the importance of the visceral manifestations of the disease.

In Cases II. and X., arsenic appears to have been beneficial; in other instances it did not seem to do good.